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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,148	12/28/2001	Francois J. Blouin	3650-018US	5222

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EXAMINER

PHAN, TAM T

ART UNIT	PAPER NUMBER
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2144

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,148

Applicant(s)

BLOUIN ET AL.

Examiner

Tam (Jenny) Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/28/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This application has been examined. Claims 1-46 are presented for examination.

Priority

2. No priority claims have been made.
3. The effective filing date for the subject matter defined in the pending claims in this application is 12/28/2001.

Information Disclosure Statement

4. An initialed and dated copy of Applicant's IDS form 1449, Paper No. 03/28/2002, is attached to the instant Office action.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 31-44 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. An edge node controller comprising means for receiving a connection request, means for identifying a sink node, etc. is non-statutory, since it is not tangibly embodied in a manner so as to be executable as the only hardware is in an intended use statement. This is true even if the means for includes hardware, since it is the intent of the execution of the controller and not the controller itself that includes such hardware. In applicant's specification, the means for carrying out the various steps may be implemented as entirely software.

"some embodiments of the invention may be implemented as a combination of both software (e.g., a computer program product) and hardware. Still other embodiments of the invention maybe implemented as entirely hardware, or

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entirely software (e.g., a computer program product). For example, in a method according to an embodiment of the present invention, various steps maybe performed at each of an edge controller, core controller, or network controller. These steps may be implemented via software that resides on a computer readable memory located at each of said edge controller, core controller, or network controller" (page 40 lines 8-16).

7. Claims 45-46 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A computer program product having instructions thereon which when executed perform the computer program means for controlling a network system would normally be considered statutory unless the specification defines "computer program product" as including intangible media such as signals, carrier waves, transmissions, optical waves, transmission media or other media incapable of being touched or perceived absent the tangible medium through which they are conveyed. In this case, applicant's specification defines "computer program product" as including:

"The medium may be either a tangible medium (e.g., optical or electrical communications lines) or a medium implemented with wireless techniques (e.g., microwave, infrared or other transmission techniques). The series of computer instructions embodies all or part of the functionality previously described herein. Those skilled in the art should appreciate that such computer instructions can be written in a number of programming languages for use with many computer architectures or operating systems. Furthermore, such instructions may be stored in any memory device, such as semiconductor, magnetic, optical or other memory devices, and may be transmitted using any communications technology, such as optical, infrared, microwave, or other transmission technologies" (page 39 line 27-page 40 line 4).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindskog et al. (U.S. Patent Number 6,370,572), hereinafter referred to as Lindskog, in view of Graves et al. (U.S. Patent Number 6,741,572), hereinafter referred to as Graves.

10. Regarding claim 1, Lindskog disclosed a multi-stratum multi-timescale control system for a network (Figures 1, 4-5, column 3 lines 8-17), said system comprising: resource management means operating at a first stratum on a first timescale for providing network management functions [Managed Network Resources] (Figure 4); resource allocation means operating at a second stratum on a second timescale for providing resource allocation functions [RTPMS] (Figure 4, column 5 lines 17-35); provisioning means operating at a third stratum on a third timescale for providing provisioning functions [RTCS] (Figure 4, column 6 lines 3-22); each successive timescale being coarser than its preceding timescale (column 3 lines 63-67, column 5 lines 56-63); and wherein a lower stratum network function provides network information to a higher stratum network function, said higher stratum network function making control decisions based on said network information (Figure 4, column 9 lines 21-45, column 15 line 63-column 16 line 12).

11. Lindskog taught the invention substantially as claimed. However, Lindskog did not expressly teach a control system having routing means operating at a first layer for providing routing functions.

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12. Lindskog suggested exploration of art and/or provided a reason to modify the control system with additional feature such as routing means for providing routing functions (Figure 3, column 17 lines 63-65, column 16 lines 37-44).
13. Graves disclosed a control system having routing means operating at a first layer for providing routing functions (Abstract, column 2 lines 12-15, column 6 lines 4-31).
14. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the control system of Lindskog with the teachings of Graves to include the routing means at the first layer for providing routing functions in order to support distributed network since as the network grows in geographic size and capacity, the number of nodes increases, and a large percentage of the data routed by the network must be routed through routers (column 6 lines 23-31).
15. Regarding claims 2-4, Lindskog disclosed system wherein said routing functions provide said network information in the form of a routing index metric, wherein said routing index metric is created based on automated measurements of a plurality of routes in a route set and wherein said measurements comprise state information measurements along an entire route (column 3 lines 8-17, column 6 lines 4-15, column 7 lines 9-27, column 12 lines 43-56).
16. Regarding claim 5-7, Lindskog and Graves disclosed system wherein said routing index metric is based on route depth, based on constituent traffic, and based on traffic classification with respect to defined thresholds (Lindskog, Figure 6, column 15 lines 39-62; Graves, Figure 4, 6B, 7, column 18 lines 39-55).

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17. Regarding claim 8, Graves disclosed system further comprising means for measuring efficacy of route selection in said network based on said routing index metric (column 9 lines 1-22).

18. Regarding claim 9-10, Graves disclosed system wherein said resource allocation functions provide said network information in the form of a resource allocation index metric and wherein said resource allocation index metric is created based on automated measurements of prior resource allocation data (column 4 lines 24-32, column 9 lines 1-22, lines 31-54).

19. Regarding claim 11, Graves disclosed system further comprising means for measuring efficacy of resource allocation in said network based on said resource allocation index metric (column 4 lines 24-32, column 9 lines 1-22, lines 31-54).

20. Regarding claim 12, Lindskog disclosed system wherein said resource allocation functions comprise functions which configure the network so as to satisfy resource allocation requirements (column 5 lines 37-47).

21. Regarding claim 13-15, Lindskog and Graves disclosed system wherein said provisioning functions provide said network information in the form of a constituent traffic metric, wherein said constituent traffic metric is created based on automated measurements of the amount of traffic carried on various links of the network, and wherein said measurements comprise measurements of accepted primary traffic, accepted secondary traffic, and rejected traffic (Lindskog, column 6 lines 23-45; Graves, column 4 lines 24-32, column 9 lines 1-22, lines 31-54).

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22. Regarding claim 16, Graves disclosed system wherein said constituent traffic metric determines network provisioning requirements (column 2 lines 52-65, column 3 lines 8-29).
23. Regarding claim 17, Lindskog and Graves disclosed system wherein said routing means includes an edge controller (Graves, column 12 lines 41-52), said resource allocation means includes a core controller, and said provisioning means includes a network controller (Lindskog, column 5 lines 48-63, column 6 lines 3-15, column 9 lines 45-50, column 15 lines 39-43).
24. Regarding claim 18, Lindskog disclosed system wherein said resource allocation means and said provisioning means are integrated (Figure 4).
25. Regarding claim 19, Lindskog disclosed system wherein said second stratum and said third stratum are integrated (Figure 4).
26. Regarding claim 20, Lindskog disclosed system wherein said second timescale and said third timescale are the same timescale (column 7 lines 52-58, column 9 lines 18-27, column 12 lines 31-56).
27. Regarding claim 21, Lindskog and Graves combined disclose a multi-timescale control method for a network wherein each of successive timescales in said network is coarser than its preceding timescale (Lindskog, Figures 1, 4-5, column 3 lines 8-17), said method comprising the steps of: a) performing, on a first timescale, a routing function, said routing function including determining resource allocation requirements based on a routing index (Graves, Abstract, column 2 lines 12-15, column 6 lines 4-31); b) performing, on a second timescale, a resource allocation function, said resource

allocation function including determining resource augmentation requirements based on a resource allocation index (Lindskog, Figure 4, column 5 lines 17-35, column 9 lines 21-45, column 15 line 63-column 16 line 12); c) calculating, on a third timescale, network provisioning requirements based on said resource augmentation requirements, whereby said network provisioning requirements may be provided for a resource augmentation decision (Lindskog, Figure 4, column 6 lines 3-22, column 9 lines 21-45, column 15 line 63-column 16 line 12).

28. Regarding claims 22-23 and 25-30, the method limitations are similar to the system limitations of claims 2-4 and 10-14, and thus these claims are rejected using the same rationale.

29. Regarding claim 24, Graves disclosed a method wherein said measurements are collected for a connection that is denied along said route (column 8 lines 19-28, column 9 lines 7-22).

30. Regarding claim 31, Lindskog and Graves disclosed an edge node controller comprising: means for receiving a connection request from a source node; means for identifying a sink node from said connection request; means for selecting a route set based on identification of said source node and said sink node; means for selecting a candidate route from said route set in order of rank; means for signaling a connection on said candidate route; means for receiving measurements taken along said candidate route; means for computing a routing index value for said candidate route; means for updating a routing index metric with said route index value; and means for transmitting resource allocation requirements to a core node controller (Lindskog, Figures 1, 3-4, 6,

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column 5 lines 48-63, column 6 lines 3-15, column 9 lines 45-50, column 15 lines 39-43; Graves, Abstract, Figure 6B, column 2 lines 52-65, column 3 lines 8-29, column 17 lines 36-44).

31. Regarding claim 32, Lindskog disclosed an edge node controller wherein said measurements include state information measurements along the entirety of one of an accepted and a rejected candidate route (column 3 lines 8-17, column 6 lines 4-15, column 7 lines 9-27, column 12 lines 43-56).

32. Regarding claim 33, Lindskog and Graves disclosed an edge node controller wherein said routing index metric is based on route depth, wherein said routing index metric is based on constituent traffic, and wherein said routing index metric is based on traffic classification with respect to defined thresholds (Lindskog, Figure 6, column 15 lines 39-62; Graves, Figure 4, 6B, 7, column 18 lines 39-55).

33. Regarding claim 36, Graves disclosed an edge node controller further comprising means for measuring efficacy of route selection based on said routing index metric (column 9 lines 1-22).

34. Regarding claim 37, Lindskog and Graves combined disclose a core node controller comprising: means for receiving a resource allocation requirement from an edge node controller; a memory for storing a plurality of resource allocation requirements; means for configuring resources in at least one core node in response to said stored resource allocation requirements; means for tracking failed resource configuration attempts; means for computing resource augmentation requirements based on said failed resource configuration attempts; means for transmitting said

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resource augmentation requirements to a provisioning means for calculating network provisioning requirements based on said resource augmentation requirements (Lindskog, Figures 1, 3-4, 6, column 6 lines 3-15, column 9 lines 45-50, column 15 lines 39-43; Graves, Abstract, Figure 6B, column 12 lines 41-52, column 17 lines 36-44)..

35. Regarding claim 38, Lindskog disclosed a core node controller further comprising: means for computing a resource allocation index based on said resource augmentation requirements (Figure 4, column 5 lines 17-35, column 9 lines 21-45, column 15 line 63-column 16 line 12).

36. Regarding claim 39, Graves disclosed a core node controller wherein said resource allocation index is created based on automated measurements of prior resource allocation data (column 4 lines 24-32, column 9 lines 1-22, lines 31-54).

37. Regarding claim 40, Lindskog disclosed a core node controller further comprising: means for measuring efficacy of resource allocation based on at least some information in said resource allocation index (column 6 lines 16-44, column 7 lines 36-51).

38. Regarding claim 41, Lindskog disclosed a core node controller further comprising: means for determining the severity of said resource allocation requirements; and means for sorting said plurality of resource allocation requirements according to severity (Figure 6B, column 6 lines 3-15, lines 23-44).

39. Regarding claim 42, Lindskog disclosed a core node controller wherein said provisioning means is provided on said core node controller (column 6 lines 3-15).

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40. Regarding claim 43, Lindskog and Graves combined disclose a node controller comprising: means for selecting a link in a route (Lindskog, column 4 line 61-column 5 line 9); means for determining whether said link has sufficient free capacity to satisfy a connection requirement (Graves, Figure 6B); means for accumulating link rejection data in a link rejection record (Lindskog, Figure 6, column 8 lines 36-64); means for updating a link occupancy record (Lindskog, Figure 6, column 8 lines 36-64); and means for sending a release message when link rejection data is accumulated (Graves, Figure 6B, column 12 lines 41-52).

41. Regarding claim 44, Graves disclosed a node controller further comprising: means for receiving said connection requirement including connection parameters from a source node; means for obtaining a route set based on said connection parameters; means for sending a connection tracking message; means for selecting said route from said route set; and means for determining whether said connection requirement will be accepted (column 6 lines 4-16, column 9 lines 31-54).

42. Regarding claims 45-46, the computer program product corresponds directly to the node controller of claims 43-44, and thus these claims are rejected using the same rationale.

43. Since all the limitations of the claimed invention were disclosed by the combination of Lindskog and Graves, claims 1-46 are rejected.

Conclusion

44. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to the enclosed PTO-892 for details.

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45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam (Jenny) Phan whose telephone number is (571) 272-3930. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARC D. THOMPSON
MARC THOMPSON
PRIMARY EXAMINER

Tam T. Phan
July 8, 2005

EP